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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,352	11/07/2001	Reuven Bakalash	122-007USANCO	8662

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EXAMINER

WASSUM, LUKE S

ART UNIT	PAPER NUMBER
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2177

DATE MAILED: 11/19/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/053,352

Applicant(s)

BAKALASH ET AL.

Examiner

Luke S. Wassum

Art Unit

2177

-- Th MAILING DATE of this communication appears n the cover sheet with the corresp ndence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

1. The Applicants' claim to domestic priority under 35 U.S.C. § 120, as a Continuation of application 09/796,098, filed 28 February 2001, which is a Continuation-in-Part of application 09/514,611, filed 28 February 2000, and application 09/634,748, filed 9 August 2000, is acknowledged.
2. As a result, a priority date of no later than 28 February 2001 (the filing date of the parent application) is established, and depending upon the specific subject matter claimed, the priority date could be as early as 28 February 2000.

Preliminary Amendment

3. Applicants' Preliminary Amendments, filed 29 April and 6 May 2002, have been received, entered into the record, and considered.
4. The amendments concerned the removal of text in the specification that referred to drawing Figure 17B. The claims were not amended. Claims 1-20 remain pending in the application.

Specification

5. In the 'Related Cases' section of the specification, the status of the related cases, as well as the patent numbers of those cases that have issued as patents, should be included with references to the related cases. The specification is objected to for this reason.

Appropriate correction is required.

6. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code on at least page 2, line 16, on page 7, line 25, on page 10, line 5, on page 13, line 24, page 42, line 5, and page 44, line 17. The Applicants are required to delete the embedded hyperlink and/or other form of browser-executable code. For more details on this requirement, see MPEP § 608.01.

7. The disclosure is objected to because of the following informalities:

On page 18, line 6 and page 20, line 27, 'deceased' should be *decreased*.

On page 13, line 25, there is a typographical error "one ore more...".

On page 15, line 21, there are erroneous characters ").".

On page 37, line 28, "patent" should be "parent".

On page 41, line 20, there is a typographical error "it is an object of the present invention is to...".

On page 43, line 27, reference is made to Figure 6E, but there is no such drawing Figure in the application.

On page 44, line 3, reference is made to Figure 6F, but there is no such drawing Figure in the application.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 2177

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 5, 6 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claim 5 recites the limitation "said interface" in the first line. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 6 recites the limitation "said client machines" in the first line. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 9 recites the limitation "said interface" in the first line. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 1, 3-13 and 15-20 are rejected under 35 U.S.C. 102(e) as being anticipated by **Nolting et al.** (U.S. Patent 6,385,301).

15. Regarding claim 1, **Nolting et al.** teaches a data aggregating module as claimed, comprising an aggregation engine and a multidimensional datastore, wherein the multidimensional datastore stores multidimensional data logically organized along N dimensions, and wherein the aggregation engine performs data aggregation operations on said multidimensional data by:

- a) performing a first stage of data aggregation operations along a first dimension of said N dimensions (see disclosure of binning data by hours of day, col. 19, lines 17-45); and
- b) performing a second stage of aggregation operations for a given slice in the first dimension along another dimension in said N dimensions (see disclosure of the summary tables, comprising, for example, spread call durations, attempts, completions, and related data, organized by study, office, date and hour, col. 20, lines 27-41; see also col. 8, lines 15-35).

16. Regarding claim 13, **Nolting et al.** teaches a method of data aggregation as claimed, for use with a multidimensional datastore that stores multidimensional data logically organized along N dimensions, the method comprising the steps of:

- a) performing a first stage of data aggregation operations along a first dimension of said N dimensions (see disclosure of binning data by hours of day, col. 19, lines 17-45);
- b) performing a second stage of aggregation operations for a given slice in the first dimension along another dimension in said N dimensions (see disclosure of the summary tables, comprising, for example, spread call durations, attempts,

Art Unit: 2177

completions, and related data, organized by study, office, date and hour, col. 20, lines 27-41; see also col. 8, lines 15-35); and

c) storing resultant data in said multidimensional datastore (see disclosure that the aggregated data is output in summary tables, col. 20, lines 27-41).

17. Regarding claims 3 and 15, **Nolting et al.** additionally teaches a data aggregation module and method further comprising:

a) a data loading mechanism for loading data from a database (see col. 7, lines 58-63); and

b) a storage handler for storing the data loaded from the database and the aggregated data generated by the aggregation engine in the multidimensional datastore (see bin calls in data preparation process 70 in Figure 1; see also col. 7, line 57 through col. 8, line 5).

18. Regarding claims 4 and 16, **Nolting et al.** additionally teaches a data aggregation module and method further comprising an interface for receiving queries generated by a requestor, and control logic that, upon determining that the multidimensional datastore does not contain data required to service a given query, controls the aggregation engine to generate aggregated data required to service the given query and controls the aggregation module to return the data to the requestor (see col. 6, lines 3-16; see also col. 17, lines 16-56).

19. Regarding claim 5, **Nolting et al.** additionally teaches a data aggregation module wherein said interface interfaces to an OLAP server comprising OLAP analysis logic and presentation logic, and client machines operably coupled to the OLAP server to provide user-directed OLAP analysis,

Art Unit: 2177

to thereby realize an OLAP system capable of performing data aggregation operations on the data, and storing and managing such data (see col. 6, lines 3-16; see also col. 17, lines 16-56).

20. Regarding claim 6, **Nolting et al.** additionally teaches a data aggregation module wherein said client machines include a web-browser-based user interface that enables user access to the OLAP server (see col. 6, lines 3-16).

21. Regarding claim 7, **Nolting et al.** additionally teaches a data aggregation module, integral to a DBMS to thereby realize an improved DBMS capable of performing data aggregation operations on the data and storing and managing such data (see col. 5, line 45 through col. 6, line 28; see also col. 17, lines 16-56).

22. Regarding claim 8, **Nolting et al.** additionally teaches a data aggregation module, integral to a DBMS operably coupled to a plurality of client machines over a network, to thereby realize a data warehouse capable of performing data aggregation operations on the data and storing and managing such data (see col. 5, line 45 through col. 6, line 28; see also col. 17, lines 16-56; see also client terminals 9 in Figure 2B).

23. Regarding claims 9 and 17, **Nolting et al.** additionally teaches a data aggregation module and method wherein the query interface implements a standard protocol for accessing data (see col. 19, lines 38-45).

Art Unit: 2177

24. Regarding claims 10 and 18, **Nolting et al.** additionally teaches a data aggregation module and method wherein the standard protocol comprises one of OLDB, OLE-DB, ODBC, SQL and JDBC (see col. 19, lines 38-45).

25. Regarding claims 11, 12, 19 and 20, **Nolting et al.** additionally teaches a data aggregation module and method wherein the aggregation engine stores the resultant data of aggregation operations for the given slice as a record in a data file, wherein start address and end address of the record, and the physical address of the data file is stored in a directory (see disclosure that the multi-dimensional database can be stored in a file, and furthermore that the structure of the data within the file makes it possible to “slice and dice the data” however the user wants to look at it, functionality that would not be possible without a directory that stored the address of the file and the start/end address of the records therein, col. 22, lines 52-67).

Claim Rejections - 35 USC § 103

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

27. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 2177

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

28. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

29. Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nolting et al.** (U.S. Patent 6,385,301) as applied to claims 1, 3-13 and 15-20 above, and further in view of **Castelli et al.** (U.S. Patent 6,535,872).

30. Regarding claims 2 and 14, **Nolting et al.** teaches a data aggregation module and method substantially as claimed.

Nolting et al. does not explicitly teach a data aggregation module and method wherein the second stage of aggregation operations involves recursive data aggregation operations for slices in said N dimensions.

Castelli et al., however, teaches a data aggregation module and method wherein data cubes are iteratively and recursively aggregated in one dimension (see col. 5, line 55 through col. 6, line 1; see also col. 8, line 11 through col. 9, line 4; see also Figure 12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to recursively aggregate slices of data in a data cube, since this would allow a system to materialize and store only a subset of views of the data cube, and to compute additional views from the materialized views (see col. 1, lines 44-53), thus providing more direct access to the data views of interest.

Conclusion

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Deshpande et al. (U.S. Patent 6,601,062) teaches an active cache for use with an On-Line Analytic Processing (OLAP) system that can not only answer queries that match data stored in the cache, but can also answer queries that require aggregation or other computation of the data stored in the cache.

Colby et al. (U.S. Patent 6,629,094) teaches a system for answering a relational database query through the use of precomputed views.

Gupta et al. ("Index Selection for OLAP") teaches a family of algorithms for automating the selection of summary tables and indexes for precomputing summary tables in from a data cube, including the computation of subcubes with fewer dimensions than the full data set.

The following reference, while not qualifying as prior art, is also of interest:

Bakalash et al. (U.S. Patent Application Publication 2002/0029207) teaches a method of aggregating data elements in multidimensional databases.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke S. Wassum whose telephone number is 703-305-5706. The examiner can normally be reached on Monday-Friday 8:30-5:30, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 703-305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

In addition, INFORMAL or DRAFT communications may be faxed directly to the examiner at 703-746-5658.

Customer Service for Tech Center 2100 can be reached during regular business hours at (703) 306-5631, or fax (703) 746-7240.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



Luke S. Wassum
Art Unit 2177

lsw
14 November 2003